POLICY PROFILE

Renewable Portfolio Standard

Maine

Policy Description

In 1999, the Maine Public Utilities Commission (PUC) adopted rules requiring electric utilities to generate at least 30% of all electricity sales through renewable energy sources as part of the state's renewable portfolio standard (RPS). A generating facility is eligible to qualify under the RPS if its electric capacity is 100 MW or less and is powered by fuel cells, tidal energy, solar, wind, geothermal, hydro, biomass, municipal solid waste in conjunction with recycling, combined heat and power (CHP), or other systems that qualify as "small power production facilities" under the Federal Public Utility Regulatory Policies Act of 1978 (PURPA). In 2008, the State of Maine introduced two separate classes under which renewable systems can fall: Class I and Class II.

Class I resources:

- Class I includes renewable-fueled systems that have been installed and come online or been refurbished in accordance with certain requirements after September 1, 2005.
- The 2008 legislation[1] required that an additional 1% of annual electricity sales be generated from Class I resources. By 2017, the requirement reached 10% of electricity sales to be generated from Class I resources. It was designated to stay at 10% through the end of 2022.

Class II resources:

- Class II resources include other eligible resources that existed prior to September 1, 2005.
- Class II resources must fuel 30% of annual electricity generation.
- Fossil-fueled CHP and municipal solid waste are not eligible as Class I resources and must be classified as Class II, independent of the year of installation. Furthermore, for a fossil-fueled CHP system to qualify as Class II, it must have been constructed prior to 1997.

Maine's RPS requirements can be met through the purchase of renewable energy credits (RECs). Electricity generators in Maine established an REC trading and tracking mechanism for the Independent System Operator New England (ISO-NE), referred to as the New England Power Pool Generation Information System (NEPOOL GIS). This system allows for the trading of the renewable attribute of a megawatt-hour separately from the energy value of the megawatt-hour. This means each megawatt-hour generated by a qualifying facility converts to an REC, and these RECs can be sold at various prices (depending on the state and REC class) to facilities or utilities looking to meet their renewable energy goals.

The North American Renewables (NAR) Registry now serves as the REC tracking system for the Northern Maine Independent System Administrator (NMISA) for Aroostook and Washington Counties, as these counties are not part of ISO-NE. The NAR Registry in NMISA is similar to the NEPOOL GIS Registry in ISO-NE, where Class I and Class II RECs are tracked for Maine's RPS. Certificates generated from the NMISA region can be exported to ISO-NE, but this requires an energy import into NEPOOL as well as certificate claim in the NEPOOL GIS Registry.

Policy Development

According to the 2018 report of activity published on March 31, 2020, RECs were sold on average for $6.45 and $0.89 per MWh for Class I and Class II resources in Maine, respectively. It should be noted that RECs used to meet Class I requirements may not also be used to satisfy Class II. Hydroelectric power makes up the vast majority (93.89%) of Class II RECs, as Maine has considerable capacity, which keeps the cost of RECs for Class II significantly lower than Class I.

[1] "An Act to Reform Maine's Renewable Portfolio Standard," accessed August 10, 2020, https://www.mainelegislature.org/legis/bills/bills_129th/billtexts/SP045701.asp.

In June of 2019, Maine legislature enacted a new law titled "An Act to Reform Maine's Renewable Portfolio Standard."[1] One of the amendments in this new law changed the designation for Class I generation from 10% to 14% through the end of 2020, 17% through 2021, and 50% by 2030 and each year thereafter. The Act also created a new class of resources termed Class IA resources. A Class IA resource is the same as a Class I resource, but ISO-NE either did not operate or did not recognize it as a capacity resource for at least two years, and after September 1, 2005, ISO-NE either resumed operation or did recognize it as a capacity resource. These systems are contractually obligated to offer their output into ISO-NE's day-ahead energy market. The Act requires utilities to obtain increasing percentages of supply for retail sales within the state from Class IA resources, beginning at 2.5% for 2020 and increasing gradually to 40% by 2040.

The Maine PUC also sets an alternative compliance payment (ACP) that utilities must pay if they are unable to satisfy RPS requirements by generating or procuring RECs for Class I and Class IA resources. Revenues from the ACP are directed to the State of Maine's Energy Efficiency and Renewable Resource Fund. In 2008, the ACP base rate for the Class I standard was set at $57.12 per MWh. By 2019, the ACP rate was $70.44 per MWh. Starting in 2020, the ACP has been capped at $50.00 per MWh for the foreseeable future.

Policy Outcomes

On May 2, 2011, Exeter Agri-Energy, LLC, partnered with Stonyvale Farm and filed a petition to certify the farm's biogas facility as a Class I renewable resource. The system consists of a 980 kW CHP reciprocating engine fueled exclusively with biogas generated by anaerobic digestion of onsite cattle manure and food waste from outside the farm. The system commenced operation in 2011 and was approved as a Class I resource under the Maine RPS.

Stonyvale Farm, Exeter, Maine
Photo courtesy of Exeter Agri-Energy, LLC

The CHP engine burns the biogas to power a generator producing an average of 22,000 kWh per day. Electric power not used by the facility is net-metered to the grid. The recovered heat supports the digestion process. Stonyvale Farm expects to produce and market approximately 8,000 Class I RECs per year. At the average rate of $6.45/MWh, the RECs totaled approximately $50,000 in 2018.

Thermal RECs

In addition to the introduction of Class IA RECs, the Act to Reform Maine's Renewable Portfolio Standard requires competitive electricity suppliers in Maine to obtain thermal RECs (T-RECs). Electric utilities in Maine must purchase thermal RECs in an amount equivalent to 0.4% of their retail electricity sales in 2021 and 3.6% of their retail electricity sales by 2030. Eligible thermal sources include heat, steam, hot water, or other forms of thermal energy produced as a byproduct of electricity generated by a Class I or Class IA resource that began operation after June 30, 2019, and is in accordance with applicable energy performance standards established by the Maine PUC.

One T-REC represents one megawatt-hour, or 3,412,000 British thermal units, of produced thermal energy. T-REC prices are given in $/MWh, and the designated T-REC price will be established in the first quarter of 2021. The generator of the eligible thermal energy acquires T-RECs, which can then be sold to reduce the overall cost of running the system. For example, a biomass boiler burning 250 tons of wood pellets per year at $240 per ton results in a fuel cost of $60,000 per year. Assuming the average cost of a T-REC is $15 and an average of four T-RECs are generated per ton of pellets, the annual fuel savings would be nearly $15,000, or 25%.

For More Information

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